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Filed : September 24, 1998

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On page 8, line 23, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:17" and substitute in its place --SEQ ID NO:28--.

On page 8, line 29, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:18" and substitute in its place --SEQ ID NO:29--.

On page 9, line 5, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:19" and substitute in its place --SEQ ID NO:30--.

On page 9, line 11, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:20" and substitute in its place --SEQ ID NO:31--.

On page 9, line 17, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:21" and substitute in its place --SEQ ID NO:32--.

On page 9, line 23, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:22" and substitute in its place --SEQ ID NO:33--.

On page 9, line 29, after the "in" and before the word "or" please cancel the phrase "SEQ ID NO:23" and substitute in its place --SEQ ID NO:34--.

On page 10a, after page 10 and before page 11, at the top of the page, please cancel the page number "10a" and substitute in its place --11--. Please renumber all remaining pages accordingly.

On page 10a, line 19, please cancel the phrase "SEQ ID NO:7 or 9 or 10 or 12 or 14 or 16" and substitute in its place --SEQ ID NOS: 7-8 or 10 or 13-14 or 16-20 or 22-27--.

Please cancel page 17 from the word "The" to the word "20".

On page 19, in the table "Summary of sequence identity numbers", line 11, under the heading "SEQ ID NO." after the number "7", please add --and 8--.

On page 19, in the table "Summary of sequence identity numbers", line 11, under the heading "Description" please cancel the word "sequence", and substitute in its place --sequences--.

On page 19, in the table "Summary of sequence identity numbers", line 12, under the heading "SEQ ID NO." please cancel the number "8", and substitute in its place --9--.

On page 19, in the table "Summary of sequence identity numbers", line 13, under the heading "SEQ ID NO." please cancel the number "9", and substitute in its place --10--.

On page 19, in the table "Summary of sequence identity numbers", line 13, under the heading "Description." please cancel the number "8", and substitute in its place --9--.

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On page 19, in the table "Summary of sequence identity numbers", line 14, under the heading "SEQ ID NO." please cancel the number "10", and substitute in its place --11--.

On page 19, in the table "Summary of sequence identity numbers", line 14, under the heading "Description" please cancel the number "8", and substitute in its place --9--.

On page 19, in the table "Summary of sequence identity numbers", line 15, under the heading "SEQ ID NO." please cancel the number "11", and substitute in its place --12--.

On page 19, in the table "Summary of sequence identity numbers", line 16, under the heading "SEQ ID NO." please cancel the number "12", and substitute in its place --13 and 14--.

On page 19, in the table "Summary of sequence identity numbers", line 16, under the heading "Description" please cancel the word "sequence", and substitute in its place --sequences--.

On page 19, in the table "Summary of sequence identity numbers", line 16, under the heading "Description" please cancel the number "11", and substitute in its place --12--.

On page 19, in the table "Summary of sequence identity numbers", line 17, under the heading "SEQ ID NO." please cancel the number "13", and substitute in its place --15--.

On page 19, in the table "Summary of sequence identity numbers", line 18, under the heading "SEQ ID NO." please cancel the number "14", and substitute in its place --16-20--.

On page 19, in the table "Summary of sequence identity numbers", line 18, under the heading "Description" please cancel the word "sequence", and substitute in its place --sequences--.

On page 19, in the table "Summary of sequence identity numbers", line 18, under the heading "Description" please cancel the number "13", and substitute in its place --15--.

On page 19, in the table "Summary of sequence identity numbers", line 19, under the heading "SEQ ID NO." please cancel the number "15", and substitute in its place --21--.

On page 19, in the table "Summary of sequence identity numbers", line 20, under the heading "SEQ ID NO." please cancel the number "16", and substitute in its place --22-27--.

On page 19, in the table "Summary of sequence identity numbers", line 20, under the heading "Description" please cancel the word "sequence", and substitute in its place --sequences--.

On page 19, in the table "Summary of sequence identity numbers", line 20, under the heading "Description" please cancel the number "15", and substitute in its place --21--.

On page 19, in the table "Summary of sequence identity numbers", line 21, under the heading "SEQ ID NO." please cancel the number "17", and substitute in its place --28--.

On page 19, in the table "Summary of sequence identity numbers", line 22, under the heading "SEQ ID NO." please cancel the number "18", and substitute in its place --29--.

On page 19, in the table "Summary of sequence identity numbers", line 23, under the heading "SEQ ID NO." please cancel the number "19", and substitute in its place --30--.

On page 19, in the table "Summary of sequence identity numbers", line 24, under the heading "SEQ ID NO." please cancel the number "20", and substitute in its place --31--.

On page 19, in the table "Summary of sequence identity numbers", line 25, under the heading "SEQ ID NO." please cancel the number "21", and substitute in its place --32--.

On page 19, in the table "Summary of sequence identity numbers", line 26, under the heading "SEQ ID NO." please cancel the number "22", and substitute in its place --33--.

On page 19, in the table "Summary of sequence identity numbers", line 27, under the heading "SEQ ID NO." please cancel the number "23", and substitute in its place --34--.

On page 20, before "EXAMPLE 1" line 1, please insert --The present invention is further described by reference to the following examples".

On page 30, line 11, after the word "NOS:" and before the "(", please cancel the number "23" and substitute in its place --34--.

On page 30, line 18, please cancel "SEQ ID NO:7" and substitute in its place --SEQ ID NOS:7-8--.

On page 30, line 19, please cancel "SEQ ID NO:8 (nucleotide) and SEQ ID NOS:9 and 10" and substitute in its place --SEQ ID NO:9 (nucleotide) and SEQ ID NOS:10 and 11--.

On page 30 line 20, please cancel the number "11" and substitute in its place --12--.

On page 30 line 21, please cancel "NO:12" and substitute in its place --NOS:13-14--.

On page 30 line 24, please cancel the number "13" and substitute in its place --15--.

On page 30 line 24, please cancel "NO:14" and substitute in its place --NOS:16-20--.

On page 30 line 25, please cancel the number "15" and substitute in its place --21--.

On page 30 line 25, please cancel "NO:16" and substitute in its place --NOS:22-27--.

On page 30 line 27, please cancel "SEQ ID NO:17, SEQ ID NO:18," and substitute in its place --SEQ ID NO:28, SEQ ID NO:29,--.

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On page 30 line 28, please cancel the line "SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, and SEQ ID NO:23." and substitute in its place --SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, and SEQ ID NO:34.--.

On page 32, in the table, please cancel the number "32A" and substitute in its place --page 33--.

On page 32, in the table, please cancel the number "32B" and substitute in its place --page 34--.

IN THE CLAIMS

In Claims 2-7, and 9-15, please cancel the word "A" and substitute in its place "The".

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8. (Twice Amended) [A]The vaccine composition according to claim 7, wherein the polypeptide ~~is~~ a recombinant polypeptide.

16. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:8]SEQ ID NO: 9 or a sequence having at least about 40% similarity thereto.

17. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:11]SEQ ID NO: 12 or a sequence having at least about 40% similarity thereto.

18. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:13]SEQ ID NO: 15 or a sequence having at least about 40% similarity thereto.

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19. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:15]SEQ ID NO: 21 or a sequence having at least about 40% similarity thereto.

20. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:17]SEQ ID NO: 28 or a sequence having at least about 40% similarity thereto.

21. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:18]SEQ ID NO: 29 or a sequence having at least about 40% similarity thereto.

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22. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:19]SEQ ID NO: 30 or a sequence having at least about 40% similarity thereto.

23. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:20]SEQ ID NO: 31 or a sequence having at least about 40% similarity thereto.

24. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:21]SEQ ID NO: 32 or a sequence having at least about 40% similarity thereto.

25. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the polypeptide is encoded by a polynucleotide comprising [SEQ ID NO:22]SEQ ID NO: 33 or a sequence having at least about 40% similarity thereto.

26. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the recombinant polypeptide comprises the sequence of SEQ ID NO: 7 or SEQ ID NO: 8 or a sequence having at least about 40% similarity thereto.

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27. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the recombinant polypeptide comprises the sequence of [SEQ ID NO:9]SEQ ID NO: 10 or a sequence having at least about 40% similarity thereto.

28. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the recombinant polypeptide comprises the sequence of [SEQ ID NO:10]SEQ ID NO: 11 or a sequence having at least about 40% similarity thereto.

29. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the recombinant polypeptide comprises the sequence of [SEQ ID NO:12]SEQ ID NO: 13 or SEQ ID NO: 14 or a sequence having at least about 40% similarity thereto.

30. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the recombinant polypeptide comprises[the] a sequence [of SEQ ID NO:14]selected from the group consisting of SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19 and SEQ ID NO: 20, or a sequence having at least about 40% similarity thereto.

31. (Twice Amended) [A]The vaccine composition according to claim 8, wherein the recombinant polypeptide comprises[the] a sequence [of SEQ ID NO:16] selected f rom the

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Cmt group consisting of SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, and SEQ ID NO: 27, or a sequence having at least about 40% similarity thereto.

In Claims 33-47, before the word "method" please cancel the word "A" and substitute in its place --The--.

48. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:11]SEQ ID NO: 12 or a sequence having at least about 40% similarity thereto.

49. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:13]SEQ ID NO: 15 or a sequence having at least about 40% similarity thereto.

50. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:15]SEQ ID NO: 21 or a sequence having at least about 40% similarity thereto.

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51. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:17]SEQ ID NO: 25 or a sequence having at least about 40% similarity thereto.

52. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:18]SEQ ID NO: 29 or a sequence having at least about 40% similarity thereto.

53. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:19]SEQ ID NO: 30 or a sequence having at least about 40% similarity thereto.

54. (Amended) [A]The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence

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comprising [SEQ ID NO:20]SEQ ID NO: 31 or a sequence having at least about 40% similarity thereto.

55. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:21]SEQ ID NO: 32 or a sequence having at least about 40% similarity thereto.

56. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising [SEQ ID NO:22]SEQ ID NO: 33 or a sequence having at least about 40% similarity thereto.

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57. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein comprising an amino acid sequence set forth in [SEQ ID NO:7]SEQ ID NO: 7 or SEQ ID NO: 8 or a sequence having at least about 40% similarity thereto.

58. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein comprising an amino acid sequence set forth in [SEQ ID NO:9]SEQ ID NO: 10 or a sequence having at least about 40% similarity thereto.

59. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein comprising an amino acid sequence set forth in [SEQ ID NO:10]SEQ ID NO: 11 or a sequence having at least about 40% similarity thereto.

60. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein comprising an amino acid sequence set forth in [SEQ ID NO:12]SEQ ID NO: 13 or SEQ ID NO: 14 or a sequence having at least about 40% similarity thereto.

61. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein comprising an amino acid sequence selected from the group consisting of [set forth in SEQ ID NO:14]selected from the group consisting of: SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, and SEQ ID NO: 20 or a sequence having at least about 40% similarity thereto.

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62. (Amended) [A] The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein comprising an amino acid sequence selected from the group consisting of [set forth in SEQ ID NO:16]selected from the group consisting of: SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, and SEQ ID NO: 27 or a sequence having at least about 40% similarity thereto.

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77. (Twice Amended) A genetic vaccine, comprising: a polynucleotide encoding polypeptide in an amount effective to induce a protective immune response against *L. intracellularis* or related microorganism, said polynucleotide comprising a sequence at least 40% similar to a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: [8]9, SEQ ID NO: [11] 12, [SEQ ID NO:13] SEQ ID NO:15, [SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20] SEQ ID NO: 21, [and SEQ ID NO:22] SEQ ID NO: 28, SEQ ID NO: 29, SEQ ID NO: 30, SEQ ID NO: 31, SEQ ID NO: 32, SEQ ID NO: 33, and SEQ ID NO: 34.

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91. (Amended) An isolated polynucleotide comprising a sequence at least 40% identical to a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: [8]9, SEQ ID NO: [11]12, [SEQ ID NO:13] SEQ ID NO: 15, [SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20] SEQ ID NO: 21, [and SEQ ID NO:22] SEQ ID NO: 28, SEQ ID NO: 29, SEQ ID NO: 30, SEQ ID NO: 31, SEQ ID NO: 32, SEQ ID NO: 33 and SEQ ID NO: 34.

Please add the following Claims:

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92. The method according to claim 38 wherein the immunogenic component comprises a peptide, polypeptide or protein encoded by a nucleotide sequence comprising SEQ ID NO: 34 or a sequence having at least about 40% similarity thereto.

93. The vaccine composition according to claim 8 wherein the polypeptide is encoded by a polynucleotide comprising SEQ ID NO: 34 or a sequence having at least about 40% similarity thereto.

IN THE SEQUENCE LISTING

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Please cancel from the application Original Sequence Listing pages 3-23 and substitute therefore the attached Replacement Sequence Listing pages 1-25. Please consecutively renumber all pages following the canceled Original Sequence Listing.